Forest Health Protection
Pacific Southwest Region
Northeastern California Shared Service Area

Date: August 3, 2020
File Code: 3420

To: District Ranger, American River RD, Tahoe NF

Subject: Hazard Trees in Robinsons Flat Campground (FHP Report NE 20-03).

For two hours on July 13, Bill Woodruff (FHP Plant Pathologist), Kelly Pavlica (Silviculturist) and Mary Sullivan (Public Services Officer) reviewed the hazard tree situation in Robinsons Flat Campground. Hazard trees had previously been identified by Ethan Gicker (Harvest Inspector) during the pre-opening safety inspection.

Accompanying this report are:
- Report# NE95-4; *FPM Review of Robinsons Flat Campground*
- Report# NE96-1; *Follow-up FPM Review of Robinson Flat Campground*

Reported in November 1995 (NE96-1): "*... Robinson Flat Campground contains many decadent red fir in the overstory. Dwarf mistletoe (Arceuthobium abietinum f.sp.magnificae) is significantly impacting these old red fir. The parasite has weakened the older fir to the point that other diseases or insects have killed numerous large branches and some tops on the largest trees. These dead tops and branches can be hazardous should they dislodge and fall when people are nearby.*

In the process of parasitizing the trees, the dwarf mistletoe has weakened the fir trees and made them vulnerable to decay by annosus root disease and a variety of secondary wood decayers. A number of hollow red fir stumps are present in Robinson Flat CG. Annosus root disease, caused by the fungus Heterobasidion annosum, was identified in two old fir stumps west of the toilets in the campsite area north of the meadow. Fir in the vicinity of these annosus centers should be closely monitored since they have a higher probability of dying or falling. When foliage in these trees shows signs of dieback or thinning, or when the trees die, they should be removed. (Please see the annosus root disease reference, included with this report, for more information on detecting this disease.)

There are a number of newly created stumps around the group sites south of the meadow. About 10 percent of these were decayed and hollow in the center. The cause of this butt rot was not determined. It may have been a combination of H.annosum and other wood decayers. Without fruiting bodies, it is very difficult to determine the cause of the rot. Trees in the vicinity of these stumps should also be closely monitored for root disease.

The important consideration in Robinson Flat CG is that the older red fir is on the decline. Large dead branches and tops, root disease and butt rot are creating possible hazards. In addition, some of the fir have

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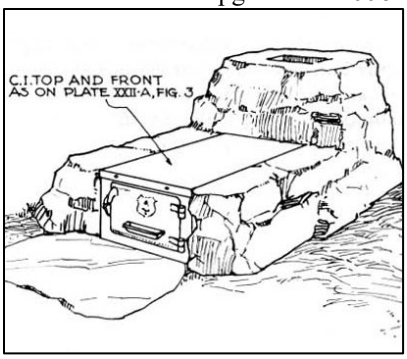
grown multiple tops, following earlier breakage. Some of these may also be hazardous. A few dead or dying lodgepole pine are also present. Trees with these defects that have potential human or property targets need to be treated. The easiest form of treatment is tree removal. Individual branches or witches brooms can be pruned to remove the hazard. An alternative to removing whole hazard trees is to remove the hazardous tops of dangerous trees and leave a high stump (10 feet or more in height) for aesthetics or wildlife purposes."

Discussion

Robinsons Flat Campground has been enlarged and updated over the last two-and-a-half decades since the above reports. In 1995, there were only a few primitive campsites in this campground with very old stoves like that shown in Figure 1. Today there are two new graveled loop roads, each accessing a modern concrete vault toilet and many new campsites; each equipped with newer picnic tables, fire rings and bear-proof boxes. The improvements have increased the user capacity and tend to attract to this campground many new visitors who expect a safe camping experience; in addition to the crowds that visit or camp in Robinsons Flat Campground for the annual 100-mile, one-day Tevis Cup Endurance Equestrian race.

Figure 1. Type of stoves present in Robinsons Flat Campground in 1995



Even though no uprooted red fir tree was observed during this short review, several dead red fir and pine trees had been cut down in 2020 for safety. With symptoms of Heterobasidion root disease present in most of the campground, it should be assumed that all the red fir trees are infected to some degree. Young red fir trees with healthy-appearing crowns probably have very little decay in the roots; whereas large, old trees may have significant root decay. It is impossible to know how much root decay exists in each tree. The many large hollow red fir stumps in the campground indicate that many large red fir trees have extensive root decay. The fact that some large red fir trees die each year is another indicator that root disease is present. Even without root decay, any very large tree can fail when exposed to severe winds, like those common in mountain top locations, like Robinsons Flat. Each giant red fir tree weighs over 100,000 pounds and can cause much damage and injury if it snaps off or blows down.

In addition to root disease, high stand density, dwarf mistletoe disease and soil compaction in much of the campground are seriously stressing many trees. High numbers of large red fir stumps throughout the campground are evidence that trees are stressed, but mostly in the area north of the meadow. Up until now, the District has been annually removing hazard trees one-by-one as they occur. Proactively, Robinsons Flat CG can be made safer by removing the old red fir overstory along with other hazardous conifers before they die and get cut down. Lots of red fir and other regeneration is present in most areas. Figure 2 shows many overstory trees with declining crowns growing above healthy-

Figure 2. Declining large trees with lots of understory conifers

looking understory trees. Removing the overstory will leave a stand of healthier young trees in and around the campsites. After removing the overstory trees, areas with dense regeneration should be thinned to improve health and vigor of the remaining trees. Note: many understory red fir trees already have Heterobasidion root disease and dwarf mistletoe; by reducing tree densities, competition between those remaining will be reduced and health improved. The added vigor of the thinned trees should compensate for the stress caused by the diseases, at least until they grow to the size where they start competing again.

Soil compaction in much of the campground is negatively affecting tree health in the campground. Keeping vehicles, horses and people away from trees will improve tree health long-term by minimizing added soil compaction.

Recommendation: treat Robinsons Flat CG with an overstory removal harvest by removing the very large red fir overstory trees and other hazard and high-risk conifers.

Maintaining and promoting healthy trees is important especially in campgrounds where visitors congregate. Over many years, individual old overstory trees in Robinsons Flat CG have been dying for various reasons. These large dead trees are cut down at Forest Service expense and usually left to rot over many decades; making the campground unsightly and walking difficult and less safe. Removing most the overstory at one time will, in addition to providing a safe camping environment, generate a one-time revenue and eliminate the annual expense of treating the trees that die, for many years-to-come. During and after treatment the following should be considered:

- Protect all leave trees from injury
- Thin dense understory trees, as needed, to promote tree health
- Implement most the overstory removal to the tall red fir trees north of the meadow where the trees are the largest and most dense.
- Remove hazard and high-risk trees in the new camping area west of the meadow and around buildings
- Beware of leaving single large live trees exposed to the added wind force created when the adjacent large trees are removed
- Guide vehicular, horse and foot traffic to minimize soil compaction around tree roots
- In designated high-traffic areas such as where equestrian service vehicles operate, replace tall, possibly unstable shade trees with pavilion or “pole barn-type structures”
- Leave healthy red fir seed trees near created openings where new seedlings are desired
- Guide foot traffic to protect desired regeneration
- Treat stumps with a registered borate fungicide to prevent Heterobasidion spores from infecting stumps and healthy roots

If you have any questions regarding this report and/or need for additional information, please contact Bill Woodruff at 530-249-7990.

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